

Appl. No. 09/870,029
Amdt. dated June 7, 2005
Reply to final Office action of April 7, 2005

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended) A system for providing Java-implemented Application Servers to a plurality of clients, the system comprising:
 - a computing system having a plurality of processing elements, each element configured such that, despite a failure of one processing element, the remaining processing elements continue to function;
 - a plurality of Java-implemented Application Servers, at least one Server assigned to execute on one or more processing elements; and
 - a distributor module that is configured to capture connection requests from a client on a port, to select one of the plurality of Application Servers to communicate with the requesting client during the connection and to assign the connection request to the selected one of the plurality of Application Servers, such that, after the assignment, the selected Application Server communicates directly with the client, wherein the distributor module is configured to capture client connection requests only for one of a plurality of associated ~~only with~~ Application server[[s]] ~~of a particular classes~~.
2. (Original) A system for providing Java-implemented Application Servers to a plurality of clients as recited in claim 1, further comprising:
 - a monitoring module that is configured to restart the distributor and any Application server that fails.

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3. (Original) A system for providing Java-implemented Application Servers to a plurality of clients as recited in claim 1,

wherein the distributor module is configured to select one of the Application Servers by:

determining whether there is an Application Server supporting fewer connections than the other Application Servers,

if there is such an Application Server, sending to the Application Server a message that identifies the client making the connection request,

if there is no such Application Server, placing the client connection request on a waiting list until such an Application Server is available, and

when such an Application Server becomes available, sending to the Application Server a message that identifies the client making the connection request.

4. (Original) A system for providing Java-implemented Application Servers to a plurality of clients as recited in claim 3, wherein determining whether there is an Application Server supporting fewer connections than the other Application Servers is performed by executing a weighted round robin procedure.

5. (Original) A system for providing Java-implemented Application Servers to a plurality of clients as recited in claim 1, wherein the distributor module is further configured to:

maintain an information structure that includes a number indicating how many clients have a connection with each Application Server,

receive a message from an Application Server that a connection between the Application Server and a client is closed, and

update the number of clients with a connection to the Application Server that sent the message.

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6. (Currently amended) A method for providing Java-implemented Application Servers to a plurality of clients, the method comprising:

providing a plurality of processing elements, each element configured such that, despite a failure of one processing element, the remaining processing elements continue to function;

causing a plurality of Java-implemented Application Servers to execute on the processing elements, at least one Server assigned to execute on one or more of the processing elements;

receiving incoming client connection requests at at least one port managed by a distributor module, the distributor module being configured to receive client connection requests only for one of a plurality of Application server classes;

selecting one of the Application Servers to communicate with the client during the connection; and

assigning, by the distributor module, the connection request to the selected Application Server such that, after the assignment, the selected Application Server communicates with the client directly[.];

~~wherein the distributor module is configured for use only with Application server of a particular class.~~

7. (Currently amended) A method for providing Java-implemented Application Servers to a plurality of clients as recited in claim [[5]] 6, further comprising the steps of:

monitoring the operation of the Application Servers and the distributor module for failures; and

if a failure occurs in the distributor module or one of the Application Servers, restarting the distributor module or Application Server.

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8. (Currently amended) A method for providing Java-implemented Application Servers to a plurality of clients as recited in claim [[5]] 6, wherein the step of selection one of the Application Servers includes the steps of:

determining whether there is an Application Server supporting fewer connections than the other Application Servers;
if there is such an Application Server, sending to the Application Server a message that identifies the client making the connection request;
if there is no such Application Server, placing the client connection request on a waiting list until such an Application Server is available; and
when such an Application Server becomes available, sending to the Application Server a message that identifies the client making the connection request.

9. (Currently amended) A method for providing Java-implemented Application Servers to a plurality of clients as recited in claim [[5]] 6,

wherein the distributor module maintains an information structure that includes a number indicating how many clients have a connection with each Application Server; and
further comprising the steps of:

receiving a message from an Application Server that a connection between the Application Server and a client is closed; and
updating the number of clients with a connection to the Application Server that sent the message.

10. (Previously presented) A system, comprising:

a plurality of processing elements, each processing element configured such that, despite a failure of one processing element, the remaining processing elements continue to function;
a plurality of application servers assigned to execute on the processing elements, wherein the plurality of application servers comprise distinct classes of application servers ; and

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a plurality of distributor modules coupled between the application servers and a plurality of clients, wherein each distributor module is configured to handle client connection requests to a distinct class of application servers.

11. (Previously presented) The system of claim 10 wherein the plurality of application servers are implemented using Java.

12. (Previously presented) The system of claim 10 wherein each distributor module has an initialization phase, a main operating phase and a restart phase.

13. (Previously presented) The system of claim 12 wherein, in the initialization phase, a given distributor module obtains a server class name for itself and server class names for application servers associated with the given distributor module.

14. (Previously presented) The system of claim 12 wherein, in the main operating phase, a given distributor module sends an address of a requesting client to an application server that is currently handling the fewest number of clients.

15. (Previously presented) The system of claim 12 wherein, in the restarting phase, a given distributor module begins a dialog with each application server associated with the given distributor module.

16. (Previously presented) The system of claim 10 wherein a distinct class of application servers comprises one of a manager class and an employee class.

17. (Currently amended) A method, comprising:
~~assigning clients to a distributor module based on a class of application~~
~~servers supported by the distributor module;~~

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initializing a distributor module, the distributor module being assigned to
distribute client connection requests to only one of a plurality of
application server types;

receiving incoming client connection requests by the distributor module;
and

distributing each client connection request by the distributor module to one
of the ~~class~~ assigned type of application servers based on a
determination of which application server is currently handling the
fewest number of clients.

18. (Previously presented) The method of claim 17 wherein distributing each client connection request by the distributor module further comprises determining when an application server has not responded to the distributor module regarding a previous request.

19. (Previously presented) The method of claim 17 further comprising placing a client connection request on a waiting list until the determination of which application server is currently handling the fewest number of clients is made.